

## CLAIMS

1. A liquid crystal display apparatus,  
comprising:

- 5           at least one polarization plate,  
          a phase difference plate,  
          a pair of oppositely disposed substrates at  
least one of which is a transparent substrate,  
          a liquid crystal disposed between said pair of  
10 substrates, and  
          means for applying a voltage to said liquid  
crystal so that a retardation of said liquid crystal  
is modulated depending on the voltage applied to said  
liquid crystal,
- 15           wherein said liquid crystal is placed in a  
first alignment state which is determined by said pair  
of substrates when the voltage is not applied thereto,  
          wherein said phase difference plate has a  
retardation so that light passing through said liquid  
20 crystal, said phase difference plate, and said  
polarization plate assumes chromatic color when the  
voltage is not applied to said liquid crystal, and  
          wherein said liquid crystal is placed in a  
second alignment state in which said liquid crystal is  
25 aligned obliquely compared with the first alignment  
state so that the retardation of said liquid crystal  
cancels the retardation of said phase difference plate

when the voltage is applied to said liquid crystal.

2. An apparatus according to Claim 1, wherein,  
when a voltage having a value which is not more than a  
predetermined value is applied to said liquid crystal,  
the retardation of said liquid crystal is modulated in  
a hue change range in which the light passing through  
said liquid crystal, said phase difference plate, and  
said polarization plate assumes chromatic color and a  
hue of the chromatic color is changed depending on the  
applied voltage and, when a voltage having a value  
which is not less than the predetermined value is  
applied to said liquid crystal, the retardation of  
said liquid crystal is modulated in a light brightness  
change range in which a brightness of the light  
passing through said liquid crystal, said phase  
difference plate, and said polarization plate is  
changed depending on the applied voltage.

3. An apparatus according to Claim 2, wherein the  
voltage having the predetermined value is a voltage  
for effecting white display.

4. An apparatus according to Claim 2, wherein  
said apparatus effects black display when a maximum  
voltage which is not less than the voltage having a  
predetermined value is applied.

5. An apparatus according to Claim 2, wherein said apparatus has a first area in which the retardation of said liquid crystal is modulated over the hue change range wherein the hue of the chromatic color is changed depending on the applied voltage having the value which is not more than the predetermined value and the brightness change range wherein the brightness is changed depending on the applied voltage having the value which is not less than the predetermined value, and a second area in which a color filter is provided and the retardation of said liquid crystal is modulated in the hue change range wherein the brightness is changed depending on the applied voltage having the value which is not less than the predetermined value.

6. An apparatus according to Claim 1, wherein the unit pixel is constituted by a plurality of sub-pixels including a first sub-pixel at which the retardation of said liquid crystal is modulated over the hue change range wherein the light passing through said liquid crystal, said phase difference plate, and said polarization plate assumes the chromatic color and the hue of the chromatic color is changed and a brightness change range wherein the light assumes achromatic color and a brightness of the achromatic color is

changed, and a second sub-pixel at which a color filter is provided and the retardation of said liquid crystal is changed in the brightness change range wherein the brightness of the light passing through said liquid crystal, said phase difference plate, and said polarization plate is changed.

7. An apparatus according to Claim 6, wherein the chromatic color at the first sub-pixel when the voltage is not applied to said liquid crystal is blue or bluish green.

8. An apparatus according to Claim 7, wherein the color filter provided at the second sub-pixel is a green color filter.

9. An apparatus according to Claim 8, wherein at the first sub-pixel, a color filter of color complementary to green.

10. An apparatus according to Claim 6, wherein the chromatic color at the first sub-pixel when the voltage is not applied to said liquid crystal is green.

11. An apparatus according to Claim 10, wherein the color filter provided at the second sub-pixel is a red color filter.

12. An apparatus according to Claim 11, wherein at the first sub-pixel, a color filter of color complementary to red.

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13. An apparatus according to Claim 1, wherein said liquid crystal has a voltage range in which a change ratio of the retardation to a temperature is substantially zero.

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14. An apparatus according to Claim 1, wherein said phase difference plate has a biaxial refractive index.

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15. An apparatus according to Claim 14, wherein said phase difference plate has refractive indices  $n_x$ ,  $n_y$  and  $n_z$  satisfying:

$$n_x > n_z > n_y,$$

wherein  $n_x$  represents a refractive index of said phase difference plate in an optical axis direction,  $n_y$  represents a refractive index in a direction perpendicular to the optical axis in a plane of said phase difference plate, and  $n_z$  represents a refractive index in a thickness direction of said phase difference plate.

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